Claim Amendments

Please amend claims 1-5, 8, 9, 12, 14, 17, and 19 as follows.

Please cancel claims 15 and 18 as follows.

Please add new claims 20-22 as follows.

Claims as Amended

1. (currently amended) A method for semiconductor device feature development using a bi-layer photoresist comprising the steps of:

providing a non-silicon containing photoresist layer over a substrate;

providing a silicon containing photoresist over the non-silicon containing photoresist layer;

~~exposing said silicon containing photoresist layer to an activating light source an exposure surface defined by an overlying pattern according to a photolithographic process;~~

~~developing said silicon containing photoresist layer according to a photolithographic process~~ photolithographically patterning the silicon containing photoresist to reveal a portion of the non-silicon containing photoresist layer; and,

dry developing said portion of the non-silicon containing photoresist layer in a plasma reactor ~~by igniting a plasma from~~

~~an ambient mixture including at least~~ comprising oxygen (O_2) [,] and carbon monoxide (CO) plasma source gases ~~, and argon~~.

2. (currently amended) The method of claim 1, wherein the step of dry developing comprises a plasma reactor ~~includes~~ comprising at least one RF power source for plasma excitation and at least one RF power source for accelerating plasma generated ions towards the substrate surface.

3. (currently amended) The method of claim 1, wherein the non-silicon containing photoresist layer comprises a non-photoactive polymer.

4. (currently amended) The method of claim 1, wherein the ~~ambient mixture includes~~ step of dry developing comprises plasma source gases consisting essentially of about 1 part oxygen, about 10 to about 50 parts carbon monoxide, and about 10 to about 50 parts Argon.

5. (currently amended) The method of claim 1, wherein the ~~activating light source has~~ step of photolithographically patterning comprises a wavelength ~~of one~~ selected from the group consisting of about 157 nanometers and about 193 nanometers.

6. (original) The method of claim 1, wherein the non-silicon containing photoresist layer has a thickness greater than the silicon containing photoresist layer.

7. (original) The method of claim 6, wherein the non-silicon containing photoresist layer has a thickness of about 1000 Angstroms to about 5000 Angstroms and the silicon containing photoresist layer has a thickness of about 500 Angstroms to about 3000 Angstroms.

8. (currently amended) The method of claim 1 ~~2~~, further comprising the step of removing the silicon containing photoresist layer according to a first in-situ ashing process.

9. (currently amended) The method of claim 8, wherein the first in-situ ashing process ~~includes igniting a plasma to include~~ comprises plasma source gases selected from the group consisting of nitrogen containing, fluorine containing, and oxygen ~~ions~~ containing to simultaneously clean the plasma reactor contact surfaces.

10. (original) The method of claim 8, further comprising the step of etching a semiconductor feature according to a reactive ion etch process.

11. (original) The method of claim 10, wherein the semiconductor feature includes one of a via hole, a trench line, a contact hole, a shallow trench isolation feature, and a polysilicon gate feature.

12. (currently amended) The method of claim 10, wherein the reactive ion etch process ~~includes~~ comprises hydrofluorocarbon plasma gas sources ~~containing ambient~~ having a fluorine to carbon ratio of at most about 2.

13. (original) The method of claim 10, further comprising the step of removing the non-silicon containing photoresist layer according to a second in-situ ashing process.

14. (currently amended) The method of claim 13, wherein the second in-situ ashing process ~~includes igniting a plasma to include~~ comprises plasma source gases selected from the group consisting of nitrogen containing, fluorine containing, and oxygen containing ~~ions, said plasma optimized~~ to simultaneously clean the plasma reactor contact surfaces.

15. cancelled

16. (original) The method of claim 14, further comprising the step of reactively ion etching through a thickness of a metal nitride layer using a hydrofluorocarbon containing plasma to at least partially form the semiconductor feature including one of a via hole and contact hole.

17. (currently amended) The method of claim 16, further comprising the step of performing an in-situ cleaning process ~~including igniting a plasma to include~~ comprising plasma source gases selected from the group consisting of nitrogen containing, fluorine containing, and oxygen containing ~~ions, said plasma optimized~~ to clean plasma contact surfaces.

18. cancelled

19. (currently amended) The method of claim 14 ~~17~~, wherein the step ~~including~~ comprising the first in-situ ashing process is combined with the step ~~including~~ comprising the second in-situ ashing process ~~to reduce a sequential number of steps~~.

20. (new) The method of claim 1, wherein the silicon containing photoresist comprises silicon monomers.

21. (new) The method of claim 1, wherein the silicon containing photoresist is formed by a silylation process.

22. (new) A method for preventing photoresist mask striation using a bi-layer photoresist in a plasma etching process comprising the steps of:

providing a non-silicon containing photoresist layer over a substrate;

providing a silicon containing photoresist over the non-silicon containing photoresist layer;

photolithographically patterning said silicon containing photoresist layer form a dry development photomask for dry developing the non-silicon containing photoresist layer; and

dry developing the non-silicon containing photoresist layer using plasma source gases comprising oxygen (O_2) and carbon monoxide (CO).